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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/628,787	DIMITRIJEVICH, SLOBODAN DAN	
	Examiner	Art Unit	
	Isis A. Ghali	1611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *41-60* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *41-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The receipt is acknowledged of applicant's amendment filed 10/24/2008.

Claims 41-60 are pending and included in the prosecution.

The following rejections have been overcome by virtue of applicant's amendment and remarks:

(A) The rejection of claims 41-60 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

(B) The rejection of claims 41-60 under 35 U.S.C. 112, second paragraph, as being indefinite.

The following new ground of rejection is necessitated by applicant's amendment:

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 41-60 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 41 and 51 are amended to recite that: "wherein the cells (fibroblast) organize randomly the type I collagen molecules into the patch in vitro". Recourse to the specification, in paragraph 0047, page 15, applicant disclosed that:

> "Fibroblasts also randomly move and redistribute themselves through the matrix attaching and mechanically pulling on the collagen in the process, and producing the integrity of the Patch. The culture process which is used to produce the Patch is therefore of multiphasic benefit."

Therefore, applicant disclosed that the fibroblasts themselves randomly move and no disclosure of the fibroblasts organize the collagen randomly as recited by the claims.

In accordance to MPEP 714.02, applicant should specifically point out to where in the disclosure a support for any amendment made to the claims can be found.

The following rejections have been discussed in details in the previous office action, and are maintained for reasons of record:

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory

obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 41-60 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of U.S. Patent No. 6,599,526 ('526). Although the conflicting claims are not identical, they are not patentably distinct from each other because the present claims are directed to anti-adhesion patch made by a process comprising the steps of mixing human connective tissue cells with collagen wherein the cell organize the collagen into patch. The claims of the issued patent '526 are directed to method of making anti-adhesion patch comprising the steps of mixing human connective tissue cells with collagen wherein the cell organize the collagen into patch. Therefore, the issued claims anticipate the present claims.

Response to Arguments

5. The examiner acknowledges applicant's intention to file a terminal disclaimer in compliance with 37 CFR 1.321(c) upon allowance of the claims to overcome the

rejection based on a nonstatutory double patenting ground provided the patent is shown to be conflicting and the patent is shown to be commonly owned with this Application. See 37 CFR 1.130(b). However, double patenting rejection should continue to be made by the examiner as long as there are conflicting claims in this application and the patent.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 41-44, 46, 47, 49-54, 56, 57, 59-60 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,700,688 ('688).

> The present claims are directed to patch comprising human fibroblast cells and collagen Type I. The capability of the patch to act as anti-adhesive is inherent for the patch comprising the claimed elements, as well as the capability of fibroblast to organize collagen is inherent function of the fibroblast.

8. US '688 disclosed tissue equivalent material formed in vitro from collagen type I and III mixed with human fibroblast (col.4, lines 25-30, 48-60; col.5, lines 20-25; col.10, lines 28-33). The mixture is incubated under standard cell culture conditions wherein the cells organize collagen fibrils to form gel material (col.5, lines 33-37). The reference disclosed incubation for 7 days (col.19, lines 18-21), meeting the limitation of claim 51 of less than 14 days. The reference teaches washing, centrifuging and filtering the mixture (col.11, lines 12-33), and this implied removal of the cells from the composition as

required by claims 47 and 57. The mixture further comprises TGFB (col.10, lines 14-15). Inherently, the provided tissue equivalent material will have anti-adhesion properties and will be adapted for use in different body cavities and during cardiac surgery. The claims are directed to product, and the method of making the product does not impart patentability to the claims, and patentability is determined by the product produced. All the elements of the product are disclosed by the reference, therefore it is capable to perform the anti-adhesion function, and hence, the reference anticipates the present claims. The capability of the patch to act as anti-adhesive is inherent for the patch comprising the claimed elements, as well as the capability of fibroblast to organize collagen is inherent function of the fibroblast. The step of removing the cells from the patch as claimed by claims 47 and 57 is directed to the method of making the patch that does not impart patentability to claims directed to product.

Response to Arguments

9. Applicant's arguments filed 10/24/2008 have been fully considered but they are not persuasive. Applicant traverses the anticipatory rejection of claims 41-44, 46, 47, 49-54, 56, 57, 59-60 over US '688 by arguing that the reference provides a uniform oriented tissue-equivalent and oriented collagen and cell matrix while the present invention provides non-uniform and non-directional matrix. Applicant relied on the Fig 5 of the reference and Figure 2a of the present invention for comparison and support. Applicant further argues that the reference does not teach anti-adhesion patch.

In response to this argument, applicant's attention is directed to the scope of the present claims that are directed to product by process, and the reference disclosed each element of the product of the rejected claims which is fibroblast and collagen type I. Although product by process claims are not limited to the manipulation of the recited steps, only the structure implied by the steps, and even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. In any event, the reference disclosed method of making the patch comprising the claimed only step which is mixing fibroblast and collagen. Furthermore, the conditions of performing this step are disclosed by the reference. In col.5, lines 25-37, the reference disclosed that the mixture is incubated under standard cell culture conditions wherein the cells organize collagen fibrils to form gel material. Nowhere the reference disclosed uniformly oriented tissue-equivalent. The description of figure 5 of the reference stated that "photomicrograph of an H & E sections of an oriented tissue-equivalent depicting the alignment of cells along the circumferential axis". Therefore, the reference does not teach uniform orientation of collagen, it is the cells that align along the circumferential axis. The present claims recite that the type I collagen is the one that organizes randomly by the fibroblasts. In page 4, paragraph 0012 of the present specification, applicant described Figures 2A as follows "shows a light microgram of the prototype Patch in which live cell are seen stretched and interacting with the matrix." Therefore, no disclosure in the present invention regarding randomly organized type I collagen, applicant only disclosed in page 15, paragraph 0047, that: "Fibroblasts only

randomly move and redistribute themselves through the matrix attaching and mechanically pulling on the collagen in the process, and producing the integrity of the Patch. The culture process which is used to produce the Patch is therefore of multiphasic benefit." This is the same mechanism of producing the patch disclosed by the reference. In absence of definition of "cells that organize randomly the type I collagen", the reference reads on the rejected claims.

With regard to the argument that the reference does not teach anti-adhesive patch, it is argued that the present claims are directed to product, and all the elements of the claims, i.e. collagen and fibroblasts, are disclosed by US '688, and the claims are anticipated since compounds and their properties are inseparable. The capability of the patch to act as anti-adhesive is inherent for the patch comprising the claimed elements, as well as the capability of fibroblast to organize collagen is inherent function of the fibroblast. As such, it is the examiner's position that the composition advanced by '688 anticipates the product of the instant claim. It has been held that the failure of those skilled in the art to contemporaneously recognize an inherent property, function, or ingredient of a prior art reference does not preclude a finding of anticipation. Whether or not an element is inherent in the prior art is a fact question. Inherency is not necessarily conterminous with knowledge of those of ordinary skill in the art, who may not recognize the inherent characteristics or functioning of the prior art. However the discovery of a previously unappreciated property of a prior art composition does not render the old composition new to the discoverer. *See Atlas Powder versus Ireco*, 51 USPQ 2d 1943, (Fed. Cir. 1999). It is noted that the limitation of "anti-adhesive" occurs

in the preamble; therefore, this limitation has not been given patentable weight. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 45 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over US '688 in view of US 6,077,978 ('987).

The teachings of US '688 are discussed in section 9 as set forth in this office action.

However, US '688 does not teach the fibroblast cells to be engineered cells as claimed by claims 45 and 55.

US '987 teaches method for enhancing the efficacy of tissue repair and promoting wound healing using engineered cells in a protein matrix (abstract; co1.4,

lines 5-13). The engineered cells are fibroblast from epidermal cells (col.4, lines 35-38, 45-50).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to provide tissue equivalent material formed from mixture of collagen type I and human fibroblast as disclosed by US '688, and replace fibroblast by engineered dermal fibroblast as disclosed by US '987, motivated by the teaching of US '987 that the engineered cells enhance the efficacy of tissue repair and promote wound healing, with reasonable expectation of having tissue equivalent material comprising collagen type I and engineered fibroblast that enhances the efficacy of tissue repair and promotes wound healing without causing adhesion between the adjacent tissues, as desired by applicants.

12. Claims 47 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over US '688 in view of US 5,899,936 ('936).

The teachings of US '688 are discussed in section 9 as set forth in this office action.

However, US '688 does not teach step of removing the cells from the patch as claimed by claims 47 and 57.

US '936 teaches method of generating implant from collagens including the step of removing cells from collagens to kill the native cells and remove potentially immunologically active soluble molecules because viable cells may elicit adverse immune response (abstract; col. 4, lines 25-29).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to provide tissue equivalent material formed from mixture of collagen type I and human fibroblast as disclosed by US '688, and further remove the viable cells from the tissue equivalent as disclosed by US '936 because US '936 teaches that viable cells may elicit adverse immune response and their removal will remove potentially immunologically active soluble molecules, with reasonable expectation of having tissue equivalent material comprising collagen type I and engineered fibroblast from which viable cells are removed with no adverse immune effect upon use.

13. Claims 48 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over US '688 in view of US 5,580,923 ('923).

The teachings of US '688 are discussed in section 9 as set forth in this office action.

However, US '688 does not teach fibrin glue disposed on the patch as claimed by claims 48 and 58.

US '923 teaches anti-adhesion film useful to prevent surgical adhesion and comprising collagen substrate that is attached to the tissue using biomedical adhesive with the most preferred method of attachment involves taping using fibrin glue to avoid suturing (abstract; col.13, lines 43-56).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to provide tissue equivalent material formed from mixture of

collagen type I and human fibroblast as disclosed by US '688, and further attach the tissue equivalent to the tissues using taping by fibrin as disclosed by US '923 because US '923 teaches that the most preferred method of attaching anti-adhesion patch to the tissue is by taping using fibrin glue to avoid suturing, with reasonable expectation of having tissue equivalent material comprising collagen type I and engineered fibroblast and further comprising fibrin glue deposited on it to safely and effectively attach the film to the tissue without further damage caused by suturing.

Response to Arguments

14. Applicant's arguments filed 10/24/2008 have been fully considered but they are not persuasive.

Applicants repeats the arguments regarding US '688, therefore, the examiner hereby repeats the same response as set forth previously in this office action.

Applicant further argues that US '987 fails to supply the missing part from US '688. US '987 is directed to different purpose not related to the present invention, and it is non-analogous art. Applicant argues that US '936 is related to the problem different from the instant invention, and US '923 teaches bi-functional anti-adhesion patch that covalently link to the tissue within the body of the patient. Combination of the references fail to establish a prima facie case of obviousness.

In response to these argument, it is argued that US '987is relied upon for the solely teaching of the engineered cells as claimed by claims 45 and 55 for the

advantage of enhancing the efficacy of tissue repair and promoting wound healing. US '936 is relied upon for the solely teaching of the viable cells that may elicit adverse immune response and their removal will remove potentially immunologically active soluble molecules, as claimed by claims 47 and 57. US '923 is relied upon for the solely teaching that the most preferred method of attaching anti-adhesion patch to the tissue is by taping using fibrin glue to avoid suturing, as claimed by claims 48 and 58.

In response to applicant's argument that US '987 and US '936 are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, both references are in the field of applicant's endeavor, which is wound healing. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Regarding the argument that US '923 teaches bifunctional anti-adhesion patch, it is argued that the claims' language does not exclude the bifunctional anti-adhesive patch or the covalent link of the patch to the body of the patient.

In considering the disclosure of the reference, it is proper to take into account not only the specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom. *In re Preda*, 401 F.2d 825,

826, 159 USPQ 342, 344 (CCPA 1968). The rational to modify or to combine the prior art does not have to be expressly stated in the prior art; the rational may be expressly or impliedly contained in the prior art or it may be reasoned from knowledge generally available to one of ordinary skill in the art. The reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve different problem. It is not necessary that the prior art suggest the combination or modification to achieve the same advantage or result discovered by applicant. *In re Linter*, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972).

It has been held that "When a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious." *KSR Int 'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1740 (2007) (quoting *Sakraida v. AG Pro, Inc.*, 425 U.S. 273,282 (1976)). "When the question is whether a patent claiming the combination of elements of prior art is obvious," the relevant question is "whether the improvement is more than the predictable use of prior art elements according to their established functions."

In addition, "To determine whether there was an apparent reason to combine the known elements in the way a patent claims, it will often be necessary to look to interrelated teachings of multiple patents; to the effects of demands known to the design community or present in the marketplace; and to the background knowledge possessed by a person having ordinary skill in the art. To facilitate review, this analysis should be made explicit. But it need not seek out precise teachings directed to the challenged

claim's specific subject matter, for a court can consider the inferences and creative steps a person of ordinary skill in the art would employ". Pp. 11-14. KSR INTERNATIONAL CO. v. TELEFLEXINC. ET AL. (2007).

It is well established that the claims are given the broadest interpretation during examination. A conclusion of obviousness under 35 U.S.C. 103 (a) does not require absolute predictability, only a reasonable expectation of success; and references are evaluated by what they suggest to one versed in the art, rather than by their specific disclosure. *In re Bozek*, 163 USPQ 545 (CCPA 1969).

In the light of the foregoing discussion, the Examiner's ultimate legal conclusion is that the subject matter defined by the claims would have been *prima facie* obvious within the meaning of 35 U.S.C. 103 (a).

Conclusion

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isis A. Ghali whose telephone number is (571) 272-0595. The examiner can normally be reached on Monday-Thursday, 6:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sharmila Landau can be reached on (571) 272-0614. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

IG

/Isis A Ghali/
Primary Examiner, Art Unit 1611